TRENDS IN AGRICULTURE SCIENCE
ISSN:2583-7850

Popular Article
Domain: Agriculture Science
Vol 5 Issue 1, Jan 2026, 107-109

Unusual Feeding Patterns of *Apis dorsata* and *Meliponini iridipennis* in Shirpur Taluka (Dhule District, Maharashtra): Implications for Bee Health and Agriculture

Krishna Chaitanya Tirunagaru
Assistant Professor, Department of Agricultural Entomology, SVKM's College of Agriculture - Tardi (Affiliated to Mahatma Phule Krishi Vidyapeeth, Rahuri), Shirpur - 425 421, Dhule, Maharashtra, India.
*Correspondent author: kcagriento@gmail.com
DOI:10.5281/TrendsinAgriculture.18617863

Abstract

Honey bees such as *Apis dorsata* and stingless bees like *Meliponini iridipennis* are vital pollinators in agroecosystems. An unusual foraging behaviour was observed during the summer in Shirpur Taluka, Dhule District: *Apis dorsata* feeding on cut-open watermelon fruits in local markets, and *Meliponini iridipennis* foraging on sugarcane waste post juice extraction. These behaviours appear to be driven by the scarcity of floral resources during extreme summer conditions. While both watermelon and sugarcane waste offer temporary sources of sugar, they lack the essential nutrients found in natural nectar and pollen, potentially affecting larval development, colony strength, and disease resistance. This shift in foraging behaviour underlines the nutritional stress faced by pollinators and raises concerns about long-term colony health and pollination efficiency. The observations highlight the need for sustainable agricultural and ecological practices that ensure year-round availability of diverse floral resources. Enhancing natural forage availability can support pollinator health and, in turn, improve crop productivity—especially for pollination-dependent crops like watermelon. These findings emphasize the importance of habitat management and pollinator-friendly farming systems in maintaining a balanced agroecosystem.

Keywords: *Apis dorsata*, *Meliponini iridipennis*, Unconventional foraging, Pollinator nutrition and Sustainable agriculture

Introduction

Honey bees, particularly *Apis dorsata*, and stingless bees, such as *Meliponini iridipennis*, play critical roles in pollination and the overall ecosystem (Sharma and Gupta, 2019). However, during the summer season in Shirpur Taluka, Dhule District, an interesting observation came to light: *Apis dorsata* bees are feeding on cut open watermelon fruits, while *Meliponini iridipennis* bees are foraging on sugarcane waste after juice extraction. This

unusual feeding behaviour, influenced by environmental factors and a scarcity of floral resources, raises concerns about bee health and agricultural practices (Corbet et al. 1993).

Feeding Behaviour of *Apis dorsata* on Watermelon: Rock Bee *Apis dorsata*, the giant honey bee, is commonly known for its aggressive nature and large hives, typically found in tropical and subtropical regions. This species of bee is usually associated with flower foraging for nectar and pollen, which are crucial for hive maintenance and honey production (Brodschneider & Crailsheim, 2010). However, in Shirpur Taluka during the summer months, these bees have been observed feeding on cut-open watermelon fruits in rush market. Watermelons, while not a common food source for bees, provide a sugary liquid that *Apis dorsata* can consume, particularly when floral resources are limited (Dyer, 2002). Bees may resort to foraging on fruits when nectar is scarce, especially during the hot summer months when plant blooming may be reduced. This behaviour is not unique to Shirpur, as similar occurrences have been observed in other regions where honey bees exploit soft fruits during periods of nectar dearth. However, this raises concerns about the nutritional value of watermelon juice to bees. While watermelon can provide an immediate sugar source, it lacks the full range of nutrients found in flower nectar and pollen, which are necessary for larval development and colony health. Furthermore, an overreliance on such suboptimal food sources may weaken the colony, making it more susceptible to diseases and stresses from the environment (Vaudo et al. 2015).

Rock Bee *Apis dorsata* feeding on watermelon

Foraging Behavior of *Meliponini iridipennis* on Sugarcane Waste: In parallel, stingless bees *Meliponini iridipennis*, another key pollinator species in the region, have been observed feeding on sugarcane waste left after juice extraction (Suryanarayanan & Chavan, 2021). Stingless bees, unlike *Apis dorsata*, are smaller and less aggressive but are equally important for pollination. *Meliponini* bees are generalist foragers and can adapt to various environments, including agricultural landscapes (Roubik, 1989). Feeding on sugarcane waste is an example of how stingless bees exploit alternative food sources when natural floral resources are limited. Sugarcane waste, rich in sucrose, may provide a quick source of energy, but similar to the case of *Apis dorsata* feeding on watermelon, it lacks the broader nutritional profile required for sustaining bee colonies long-term. For stingless bees, floral resources remain essential for proper nutrition, and any prolonged period of reliance on agricultural byproducts could have adverse effects on their reproductive and colony health

Implications for Bee Health and Agriculture: The reliance on unconventional food sources such as watermelon and sugarcane waste emphasises the importance of sustainable agricultural practices that support healthy pollinator populations (Klein et al. 2007). One major concern is that bees may experience a nutritional deficit when foraging on fruit juice or agricultural waste. The absence of essential nutrients found in pollen and nectar may result in weaker colonies, increased susceptibility to diseases, and decreased overall pollination efficiency. Furthermore, the way that *Meliponini iridipennis* and *Apis dorsata* feed demonstrates how crucial habitat management is in farming areas like Shirpur Taluka.

Because bees are turning to these less than ideal sources of food, it is important to increase the diversity of local flora and make sure that natural forage is available all year round.

Conclusion

While the feeding of *Apis dorsata* on watermelons and *Meliponini iridipennis* on sugarcane waste provides temporary sustenance during the hot summer months in Shirpur Taluka, it highlights broader concerns regarding the long term health of these pollinator populations. It is essential to prioritize ecological and agricultural practices that maintain floral diversity, ensuring that bees have access to their natural food sources. Sustainable practices can benefit not only the bees but also the agricultural economy, particularly crops like watermelon, which rely heavily on bee pollination for optimal yields.

Reference:

Sharma, P. L., and Gupta, R. K. 2019. Nesting biology and foraging behaviour of *Apis dorsata* Fabricius in the Shivalik hills of northwest Himalaya. Journal of Apicultural Research, 58(2): 234-242.

Suryanarayanan, S., and Chavan, S. 2021. Diversity and foraging ecology of stingless bees (*Meliponini*) in the Western Ghats agroecosystems. Insectes Sociaux, 68(3): 289-298.

Corbet, S. A., et al. (1993). Temperature and honey bee foraging activity. *Journal of Apicultural Research*, 32(1), 17-25.

Brodschneider, R., & Crailsheim, K. (2010). Nutrition and health in honey bees. *Apidologie*, 41(3), 278-294.

Vaudo, A. D., et al. (2015). Pollen nutritional content varies with floral resource availability. *Functional Ecology*, 29(7), 921-931.

Klein, A. M., et al. (2007). Importance of pollinators in changing landscapes for world crops. *Proceedings of the Royal Society B*, 274(1608), 303-313.

Dyer, F. C. (2002). The biology of the dance language. Annual Review of Entomology, 47, 917-949.

Roubik, D. W. (1989). Ecology and natural history of tropical bees. Cambridge University Press.